Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

SHOUT
SHARE
IT

UNITED STATES DEPARTMENT OF AGRICULTURE

BULLETIN No. 519

Contribution from the Forest Service
HENRY S. GRAVES, Forester

Washington, D. C. PROFESSIONAL PAPER January 24, 1917

POLES PURCHASED, 1915.

By Arthur M. McCreight.

INTRODUCTION.

The Forest Service, through its Office of Industrial Investigations, has compiled statistics on the number of poles purchased during 1915 in the United States by the telephone and telegraph companies, steam and electric railroads, and electric light, heat, and power companies. The census was taken exclusively by correspondence with approximately 17,000 purchasers, representing practically all the pole users in the country. About 12,000 concerns returned schedules in reply to either the first or the second request for data. This was 70 per cent of the total number of concerns to which inquiries were sent. Actually, however, the figures given in this bulletin represent between 90 and 95 per cent of the poles purchased, because the nonreporting companies were principally the smaller ones.

Information regarding the prices paid for the various species of poles was not requested.

Table I shows the number of poles purchased each year from 1907 to 1911 and for the year 1915, by kind of wood. Figures for 1911 and previous years were taken from reports compiled in cooperation with the Bureau of the Census. Statistics were not obtained for the years 1912 to 1914.

Table I.—*Poles purchased, by kind of wood, 1907 to 1911 and 1915.*

Kind of wood.	1915	1911	1910	1909	1908	1907
All kinds	4,077,964	3,418,020	3,870,694	3,738,740	3,249,154	3,283,268
Cedar	2,521,769	2,100,144	2,431,567	2,439,825	2,200,139	2,109,477
Chestnut	651,643	693,489	677,517	608,066	516,049	630,282
Pine	546,233	161,690	184,677	179,586	116,749	155,960
Oak	199,442	199,590	265,290	236,842	160,702	76,450
Cypress	67,644	72,995	75,459	77,677	90,579	100,368
All other	91,233	190,112	236,184	196,744	164,936	210,731

A total of 4,077,964 poles was reported as purchased during 1915, which represents an increase of 659,944, or 16 per cent, as compared with the number reported purchased in 1911. It is the largest number of poles reported in any single year.

The annual demand for poles, which now exceeds 4,000,000, was supplied principally from three different regions of the United States: The northern white-cedar region of the Lake States, the chestnut region of the eastern portion of the country, and the western red-cedar region of the Northwest, which includes Idaho, Oregon, and Washington.

The principal properties called for in pole timbers are durability, strength, lightness, straightness, and a surface which takes climbing irons easily. All of the species of cedar reported purchased combine practically all of these properties in a high degree.

Cedar (including northern white, western red, southern white, and red) supplied 2,521,769 poles, or 61 per cent of the total number purchased. This is an increase of 421,625, or 16 per cent, as compared with the number purchased in 1911.

Next to cedar comes chestnut, which showed a decrease of 42,846 poles, while pine showed an increase of 384,543, or 70 per cent, as compared with the 1911 purchase. Most of the pine reported was that commonly known as southern yellow pine, and includes longleaf, shortleaf, and loblolly. Of these, the longleaf is the most durable. It is reported that loblolly pine gives very brief service unless it is treated with a preservative. Western yellow pine was also reported in small quantities, but, like loblolly, it requires a preservative treatment to insure reasonable length of service.

Oak poles were purchased in practically the same number as in 1911, while cypress poles showed a decrease of 5,351 poles. The use of cypress as a pole timber seems to be falling off each year. Cedar, chestnut, and pine together formed over 91 per cent of all poles reported purchased, cedar alone, as before stated, constituting over 61 per cent.

The minor species reported were redwood, spruce, tamarack, and osage orange. All of these, however, were reported in small quantities.

Table II shows the number of poles purchased in 1915, classified according to class of purchaser and kind of wood.

TABLE II.—*Poles purchased, by class of consumer and kind of wood, 1915.*

Kind of wood.	Total.	Telephone and telegraph companies.	Electric railways, light, and power companies.	Steam railroads.
All kinds	4,077,964	1,680,880	1,430,122	966,962
Northern white cedar	1,747,210	1,029,219	239,864	478,127
Chestnut	651,643	336,496	275,304	39,843
Western red cedar	567,770	105,590	422,312	39,868
Pine	546,233	69,787	388,210	88,236
White oak	177,799	34,644	13,110	130,045
Red cedar	117,545	21,386	8,424	87,735
Southern white cedar	89,244	16,661	14,686	57,897
Cypress	67,644	24,162	18,174	25,308
Red oak	21,643	6,912	13,001	1,730
All other	91,233	36,023	37,037	18,173

As indicated in the above table, the principal purchasers of poles were the telephone and telegraph companies. They reported 44 per cent of the total number purchased. The electric railways and power companies purchased about 35 per cent of the total, while the steam railroads purchased 21 per cent.

A decrease of 721,844 poles, or 30 per cent, was reported by the telegraph and telephone companies as compared with the number purchased by these companies in 1911, while the electric railways, light, and power companies reported an increase of 642,473 poles, or 44 per cent. The steam railroads reported an increase of 739,315, or 76 per cent, as compared with their purchases in 1911.

Table III shows the number of poles purchased, classified by length and by kind of wood. Poles are usually purchased in the round form, although occasionally a purchaser reported several species being sawed. However, these are of minor importance and were either redwood or western pine.

TABLE III.—*Poles purchased, classified by length and by kind of wood, 1915.*

Kind of wood.	Total.	Under 20 feet.	20 to 29 feet.	30 to 39 feet.	40 to 49 feet.	50 feet and over.
All kinds	4,077,964	1,236,694	1,531,441	980,091	256,236	73,502
Northern white cedar	1,747,210	540,565	755,311	373,874	67,358	10,102
Chestnut	651,643	23,992	255,951	295,717	63,676	12,307
Western red cedar	567,770	17,874	314,010	139,041	71,608	25,237
Pine	546,233	373,688	69,931	65,004	23,914	13,696
White oak	177,799	120,393	33,550	16,120	5,998	1,738
Red cedar	117,545	94,997	14,870	5,624	1,541	513
Southern white cedar	89,244	4,414	13,282	49,264	15,734	6,550
Cypress	67,644	13,048	22,211	26,316	4,542	1,527
Red oak	21,643	3,737	16,341	1,280	139	146
All other	91,233	43,986	35,984	7,851	1,726	1,686

Poles are generally classified commercially in 5-foot lengths and by diameters at specified points, principally at the tops and 6 feet from the butts. To condense the figures the poles shown in the above table are divided into classes differing in length by 10 feet.

Of the total number purchased 2,768,135, or 67 per cent, were under 30 feet. Poles of these lengths are most commonly used by the telephone and telegraph companies. The poles under 20 feet in length were reported chiefly by the rural telephone companies. Among the prominent woods reported under this classification were northern white cedar, pine, and white oak. The number of poles ranging from 30 to 50 feet in length aggregated about 30 per cent of the total, while those exceeding 50 feet in length represent but a small proportion.

All of the leading woods covered by the table contributed poles of all lengths, although red oak contributed but a small per cent of the larger poles. More than half of the white-oak and pine poles were under 20 feet in length.

In comparing the 1911 purchase of poles with the 1915 purchase, an increase of 832,966 poles under 20 feet in length was reported, while the number between 20 feet and 30 feet showed a decrease of 330,375. The total number of poles purchased in the other lengths did not vary greatly from the 1911 figures, slight increases in all being reported for 1915.

PRESERVATION.

One of the most important factors in determining the value of a pole is its ability to resist decay in contact with the soil. While durable woods are generally preferred as pole timbers, there is a tendency toward purchasing other species which are not as durable, but which can be rendered less liable to decay by preservative treatment.

In the treatment of poles several methods are used. Among these are the brush treatment; the open-tank treatment, in which the poles are stood on end in open tanks or vats containing the preservatives; and the pressure treatment, in which the poles are placed in cylinders into which the preservative is then run and pressure applied to force it into the poles. Much progress is being made in the butt treatment of cedar poles by the open-tank method, which is being used extensively in Idaho, Washington, and California, and in the Minneapolis and Chicago districts. A considerable proportion of the cedar poles sold receive a butt treatment.

The Forest Service did not request information relative to the number of poles treated by the various railroads and other companies reporting the purchase of poles. It has, however, obtained information from 102 treating plants operating throughout the United States. These plants reported a total of 125,639 poles treated in 1915, which is estimated to be about one-half of the actual number subjected to treatment. A large number are treated merely by applying the preservatives with a brush, and these were not reported.

It is impossible to submit a tabulated statement showing the number of poles treated by the different kinds of preservatives, owing to the lack of detailed information obtained. In treating the poles in 1915 the principal preservative reported was creosote oil, the average absorption being about 11 pounds to the cubic foot. About 85 per cent of the poles treated were yellow pine, while others reported were western red cedar and Douglas fir.

The cost of treating poles varies according to the kind of wood treated, kind and quantity of preservative used, and process employed, but experience has demonstrated that the adoption of a pole-treating policy generally proves economical and insures added life to the poles in service.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917